ABSTRACT OF THE DISCLOSURE

A high-speed routing search is realized by a hierarchial routing table, while a conventional network having a hierarchial network as a backbone

5   performs conventional operations without being aware of the hierarchial backbone network, in a mixed environment of the hierarchial and non-hierarchial networks, by assigning the non-hierarchial network a virtual hierarchy number equivalent to a hierarchy

10   number in the hierarchial network, attaching the virtual hierarchial number to a packet to be relayed at a router located at an entrance from the non-hierarchial network to the hierarchial network, performing hierarchial routing control by the

15   virtual hierarchy number within the hierarchial network, and by removing the virtual hierarchy number from the packet to be relayed at a router located at an exit from the hierarchial network to the non-hierarchial network.